ك / كيمياء حيوى

جامعه طنطا – كليه العلوم	امتحان الفصل الدراسي الأول	المادة: مقدمه في الإحصاء
قسم الرياضيات	المستوى: الثاني [ساعات معتمده]	الزمن: ساعتان
رقم المقرر: ST2105	الشعبة: كيمياء كيمياء حيوي	التاريخ: ٢٠١٤/١/١٢

Answer the Following Questions:

1- Calculate the mean, the median and the mode for the following Senna leaves lengths which shown in the following table:

Lengths(mm)	118-126	127-135	136-144	145-153	154-162	163-171	172-180
Frequency	3	5	9	12	5	4	2

2- For the following data:

X	2	4	7	5	3	5	6	4	7	3
Y	3	5	9	7	4	6	7	6	8	5

(i) Find the regression line Y on X (ii) Estimate the value of Y if $X = 7$

(ii) Calculate Pearson 's correlation coefficient (r).

3- If the probability distribution of the discrete random variable X is defined by:

x	1	3	4	5
$p(x)$	4k	k	0.2	3k

Find: (i) k (ii) $E(2X+1)$ (iii) σ^2

4- If X is a random variable following a normal distribution such that $X \sim N(50,25)$, Calculate the following probabilities:

$(i) P(40 < X < 60)$ $(ii) P(X > 60)$ $(iii) P(X < 45)$ $(iv) P(55 < X < 65)$

Given : $A(1) = 0.34134$, $A(2) = 0.47725$, $A(3) = 0.49865$

With All My Best Wishes

Dr. Wafaa Anwar

14 - The dominant pigment in cyanobacteria is .....
a - phycoerythrin b - Chl. a c - phycocyanin d - all

15 - During log phase .....

a) Rate of multiplication and death become almost equal
b) Microorganisms phase increase in size of cell and metabolic rate
c) Population of the cells decrease
d) The cells start dividing and their number increase by geometric progression

II - Complete the sentences: - **(30 Marks)**

1 - Heterocysts are classified according to position into ..... and .....

2 - Methods of viruses purification are ..... and .....

3 - Nucleotide consists of ....., ... and .....

4 - Cyanobacteria reproduce by ..... and .....

5 - Habitats of cyanobacteria are ..... and .....

6 - Prokaryotic cells characterize by absent of....., ..., ..., ...

7- In DNA strand thiamin linked with ..... while cytosine linked with ..... through .....

8 - The thallus bodies of cyanobacteria distinguish to ..... and .....

9 - The modes of nutrition in bacteria are ....., ... and .....

10 - During photosynthetic process, the hydrogen donor in cyanobacteria is .....

and evolved ..... while in Bacteria is ..... And evolved .....

11 - The break in the trichome from where pseudo branches are formed may be brought about by ....., ... and .....

III - Tick only the wrong sentence(s) and rewrite it in correct form:- **(30 Marks)**

1 - The protein coat of viruses contains DNA and RNA.

2 - Bacterial metabolic reactions occur in cell wall.

3 - The thallus body of *Nostoc* is false branching.

5 - The position of heterocyst is intercalary in *Spirulina.*

6 - Bacteria can multiply by mitotic division.

7 - Direct microscopic counts can be used to distinguish between dead and living bacteria.

8 - The mode of nutrition in cyanobacteria is parasitic.

9 - During stationary phase, the cells start dividing and their number increase by geometric

progression.

10 - The cell wall of cyanobacteria consists of cellulose and pectin.

11 - Viruses can grow on synthetic media.

12 - Heterocyst stimulates the production of akinetes.

13 - Bacteria multiply by a sexual reproduction.

14 - Intercalary heterocyst includes one nodule polar.

15 - Some members of cyanobacteria and bacteria can fix atmospheric nitrogen.

VI - Write short notes on of the following:- (45 Marks)

a - The differences between prokaryotic and eukaryotic cells (with drawing)

b - Standard growth curve of bacteria (with drawing)

c - The difference between batch and continuous cultures.

V - With labeled diagram, discuss the mechanism of virus infection (15 Marks)

With best wishes,,,,,,,,,,,,,,,,,,,,,,,,

Examiners:

Prof. Dr. Atef Mohamed Abo-Shady

Tanta UNIVERSITY, Faculty of Science, Department of Botany

EXAMINATION FOR (SOPHOMORES) SECOND YEAR STUDENTS OF CHEM / MICRO

COURSETITLE:	PROKARYOTIC ORGANISMS		COURSE CODE: MB2101
TE: 18	SEPT., 2016	TERM: FIRST	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2HOURS

Answer the following questions:-

I - Choose the correct answer of the following: - **(30 Marks)**

1 - The main pigment which responses for the photosynthetic process in cyanobacteria is .....
a) chlorophyll a b) phycocyanin c) phycoerythrin d) nothing

2 - The precipitated viruses which retain its infectivity called .....
a - living organism b - virion c - virulence d - all

3 - The false branching present in thallus of .....
a - *Oscillatoria* b - *Tolypothrix* c - *Stigonema* d - *Nostoc*

4 - One virion absorbs with ..... red blood cells causing them to clump together.
a - three b - four c - two d - five

5 - Mode of nutrition of bacteria is.....
a - autotrophic b - heterotrophic c - parasitic d – all

6 - The hormogonia formed in .....
a - *Spirulina* b - *Scytonema* c - *Chroococcus* d - *Rivularia*

7 - The number of generations per hour in a bacteria is.....
a) Generation time b) Log phase c) Sigmoid curve d) Generation rate

8 - Which method of measuring growth is unable to distinguish between dead and living microorganisms.....
a) direct microscopic counts b) pour plate counts
c) turbidimetric measurements d) all of the above

9 - Which of the following is false about prokaryotes.....
a) They consist of bacteria and archaea b) Most are unicellular
c) They have no cell nucleus d) Cell division occurs by mitosis and meiosis

10- An experiment began with 4 cells and ended with 128 cells. How many generations did the cells go through? .....
a) 5 b) 4 c) 3 d) 6

11 - The kingdom which includes cynobacteria is .....
a - plantae b - anamilia c - protista d - monera

12 - The reproduction in bacteria takes place by .....
a - binary fission b - akinetes c - hormogonia d - all

13 - Storage food in cyanobacteria is .....
a - starch b - glucose c - cyanophycean d - all

من فضلك انظر خلف الصفحة

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SOPHOMORES (DOUBLE MAJORS)		
COURSE TITLE:	CHEMICAL THERMODYNAMICS (CH2141)		TIME ALLOWED: 2 HOURS
DATE: JAN 09, 2016	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	

Question 1:

A) Prove that $(\delta G/\delta T)_V = -S$ (6 Marks)

B) Define: (6 Marks)

i) Heat of combustion ii) Lavoisier and Laplace's law

iii) Joule-Thomson coefficient for ideal gases and real gases

C) Give reasons: (8 Marks)

1) Free energy is an extensive property of the system
2) The reaction spontaneity cannot be determined by ΔH
3) ΔE is considered to define the internal energy instead of E.
4) A simple cup of tea cannot be considered as an example of isolated system.

Question 2:

A) Derive the relationship between temperature and volume for an adiabatic expansion process of one mole of an ideal gas. (10 Marks)

B) Consider 2 moles of an ideal gas undergoing a reversible isothermal expansion at 25 °C from 1.00 atm and 49.6 L to 75.0 L. Determine q, w, ΔE, ΔH, ΔS and ΔG for this process. (10 Marks)

Question 3:

A) Use the following thermochemical equation: (10 Marks)

$\frac{1}{2}\ Cl_2\ (g) + O_2\ (g) \rightarrow ClO_2\ (g)$ $\quad \Delta_r H^\circ = 102.5$ kJ

$\frac{1}{2}\ Cl_2\ (g) + 3/2\ O_2\ (g) \rightarrow ClO_3\ (g)$ $\quad \Delta_r H^\circ = 155$ kJ

$Cl_2\ (g) + 7/2\ O_2\ (g) \rightarrow Cl_2O_7\ (g)$ $\quad \Delta_r H^\circ = 272$ kJ

To determine $\Delta_r H^\circ$ for $3\ ClO_3\ (g) \rightarrow Cl_2O_7\ (g) + ClO_2\ (g)$

B) A Carnot engine operates between two thermal reservoirs at 100 °C and 0 °C. What amount of work can it produce for each 1000 J of heat absorbed from the warm reservoir? Calculate the efficiency of the engine. (10 Marks)

C) Prove that $\Delta S_{system} + \Delta S_{surroundings} > 0$ for irreversible processes. (10 Marks)

Question 4:

A) Calculate the final pressure of an ideal diatomic gas that undergoes a reversible adiabatic compression from 1bar, 298K, and 25L to 1L. Determine the final temperature ($C_v = 5R/2$). (10 Marks)

B) Prove that $C_p - C_v = R$ (10 Marks)

C) For the following reaction, (10 Marks)

$CCl_2BrH\ (L) + H_2\ (g) \leftrightarrow CClBrH_2\ (L) + HCl\ (g)$ $\quad \Delta G^\circ = -103.72$ kJ at 35 °C

a) Calculate the equilibrium constant at 35 °C
b) Calculate ΔG when $P_{HCl} = 0.42$ atm, $P_{H2} = 17$ atm and determine the direction of the reaction at these conditions.

Note: R = 1.99 cal/mol.K = 8.31 J/mol.K

Examiners:	
Prof. Mohamed H. Shaaban	Dr. Wael A. Amer

٨. عزم القصور الذاتي لقرص دائري كتلته M ونصف قطره a وكثافته λ حول محورٍ مارٍ بمركز ثقله وعمودي على مستواه يساوي .....

أ. $Ma^2/4$ ب. $Ma^2/2$ ج. Ma^2 د. $3Ma^2/2$

٩. مركبة متجه السرعة لجسيم يتحرك بالنسبة للإحداثيات الكروية (r,θ,φ) في إتجاه زيادة الزاوية φ هي .....

أ. $v_\varphi=(r\sin\theta)\dot{\varphi}$ ب. $v_\varphi=r\sin\theta$ ج. $v_\varphi=r\dot{\theta}$ د. $v_\varphi=\dot{r}$

١٠- عزوم القوى الفعالة لجسم متماسك يدور حول محو ثابت هي .....

أ. $I_0\ddot{\theta}$ ب. $I_0\ddot{\theta}/2$ ج. $I_0\dot{\theta}$ د. $I_0\dot{\theta}/2$

حيث θ هي الزاوية التي يصنعها متجة موضع إحدى كتل الجسم مع المحور الثابت، I_0 عزم القصور الذاتي للجسم حول هذا المحور.

السؤال الثاني: (٤٠ درجة)

أ. يتحرك جسيم على منحنى الكتينة التي معادلتها الذاتية $S=c\tan\psi$ بحيث يدور المماس بسرعة زاوية ω.

برهن أن مقدار العجلة عند أي موضع يساوى $\rho\omega^2(\frac{4\rho}{c}-3)^{1/2}$، حيث ρ هو نصف قطر الآنحناء للمنحنى، وأن اتجاهها يصنع زاوية θ مع المماس، حيث $\tan\theta=(\cot\psi)/2$. (٢٠ درجة)

ب. إذا كان مقدار القوة المركزية في مدار مركزي تساوي $\mu u^3(3+2a^2u^2)$ وقذف الجسيم من بعد a بسرعة $\sqrt{5\mu/a^2}$ في إتجاه يصنع زاوية $\tan^{-1}(1/2)$ مع خط الابتداء، أثبت أن معادلة المسار هي $r=a\tan(\theta+\frac{\pi}{4})$.

(٢٠ درجة)

السؤال الثالث: (٣٥ درجة)

أ. أثبت أن عزمي القصور الذاتي بالنسبة لمحورين أساسيين هما نهاية عظمى أوصغرى لعزمي القصور الذاتي حول المحورين المتعامدين عند نفس النقطة. (٢٠ درجة)

ب. أوجد حاصل ضرب لمثلث منتظم قائم الزاوية كتلته M وطولا ضلعي القائمة a,b. (١٥ درجة)

السؤال الرابع: (٣٥ درجة)

أ. سرعة جسيم في الاتجاه المركزي والعمودي عليه هما $\mu\theta^2, \lambda r^2$ على الترتيب حيث μ,λ ثوابت، أوجد معادلة مسار الجسيم، ومركبتي العجلة في الاتجاه المركزي والعمودي عليه. (١٥ درجة)

ب. قرص دائري يدور حول محور أفقي عمودي على مستويه ومار بنقطة O الواقعة على محيطه، فإذا بدأ القرص حركته من السكون عندما كان القطر المار بالنقطة O رأسياً أعلاها، أثبت أن ردي الفعل في اتجاهي نصف القطر المار بالنقطة O والعمودى عليه هما $\frac{W}{3}(7\cos\theta-4)$، $\frac{W}{3}\sin\theta$. (٢٠ درجة)

(انتهت الأسئلة)

مع أطيب التمنيات بالتوفيق

لجنة الممتحنين: ١- أ. د. قدري زكريا	٢- د. طارق عامر

	TANTA UNIVERSITY FACULTY OF SCIENCE CHEMISTRY DEPARTMENT		
	FINAL EXAM FOR SOPHOMORES (DOUBLE MAJORS)		
COURSE TITLE:	CHEMICAL THERMODYNAMICS (CH2141)		TIME ALLOWED: 2 HOURS
DATE: JAN 09, 2016	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	

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Note: R = 1.99 cal/mol.K = 8.31 J/mol.K

Examiners:	
Prof. Mohamed H. Shaaban	Dr. Wael A. Amer

	TANTA UNIVERSITY, FACULTY OF SCIENCE, DEPARTMENT OF BOTANY			
	FINAL EXAMINATION FOR SECOND LEVEL STUDENTS SPECIAL BOTANY, SPECIAL MICROBIOLOGY, CHMEMISTRYLBOTANT AND CHEMISTRY MICROBIOLOGY			
	COURSE TITLE	GENERAL GENETICS		COURSE CODE: BO 2105
DATE	JAN-11- 2016		TOTAL ASSESSMENT MARKS 150	TIME ALLOWED 2 HOURS

Answer the following questions:

I - Mark the correct answers with the sign (√) and the wrong answers with the sign (X). **(30 Marks)**

1- Cross involving contrasting expression of the different characters referred to as monohybrid cross.

2- Genes must be transmitted from genration to generation via somatic cells.

3- Four possible gamete were produced by the trihybrid F1.

4- The test cross involving crossing two homozygous contrasting phenotypes.

5- The seed coat colour in garden pea is controlled by psedo-allele.

6- Chiasma formation at meiosis is an indication of crossing over.

7- Meiosis keeps the number of somatic chromosome constant across generations.

8- Meiosis I is called a reductin division.

9- The ABO blood groups are controlled by single gene with four alleles.

10- The coat colour in rabbit is controlled by five alleles.

II - Write on the following with drawing if possible: - **(120 Marks)**

1- Genetic significance of mitosis.

2- Mitotic cell cycle and C- value.

3- Psedo-alleles in Drosophila.

4- Genetic balance in Drosophila.

5- Types of heterochromatin.

6- Types of changes in chromosome number.

With all best wishes

Examiner committee: ***Prof. Dr. Adel El-Shanshoury*** ***prof. Dr. Mohamed Elhiti***

1989	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF GEOLOGY			
	EXAMINATION FOR SECOND LEVEL STUDENTS OF (GEOLOGY) - (GEOPHYSICS) – (GEOLOGY-CHEMISTRY)			
	COURSE TITLE:	MICROPALEONTOLOGY (1)		COURSE CODE: GE 2109
DATE:	16 JUNE, 2016	TERM: FIRST	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Write short notes on the following questions. Illustrate your answers with clear drawings and give examples:

1-General shape of the unilocular test (Five only) (20 Marks)

2- Shape of the apertures (Five only) (20 Marks)

3-Factors affecting the distribution of foraminifera (20 Marks)

4- Mode of coiling (10 Marks)

5- Give Examples: (15 Marks)

A- Mixed chambers arrangement of test.

B- Surface ornamentation.

E- Lobulate periphery.

6- Choose the correct answer of the following questions: (15 Marks)

1. Microfossils are generally excellent indicators of
   a) Tectonics b) Earthquake c) paleoecology d) Paleogeography
2. Foraminifera is
   a) Unicellular animal b) Unicellular plant c) Multicellular animal
   d) Multicellular plant
3. Agglutinated foraminiferal test is formed of
   a) Calcareous wall b) Siliceous wall c) coarse or fine cemented particles
   d) Chitineous Walls
4. Porcelaneous foraminiferal test is:
   a) Perforate b) semiperforate c) imperforate d) non-perforate
5. Unilocular foraminiferal test is
   a) septate b) non septate c) simply septate d) limbate

Best wishes

Examiners	Prof. Mahmoud Faris Mohamed	Prof. Abdelfattah Ali Zalat
	Prof. Akmal Marzouk	

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY			
	EXAMINATION FOR FRESHMEN (SECOND YEAR "ZOOLOGY" CREDIT HOURS) STUDENTS			
	COURSE TITLE:	CELL BIOLOGY & GENETICS		COURSE CODE Z02101
DATE:	16-1- 2016	SEMESTER:FIRST	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED:2 HOURS

I. Cell Biology

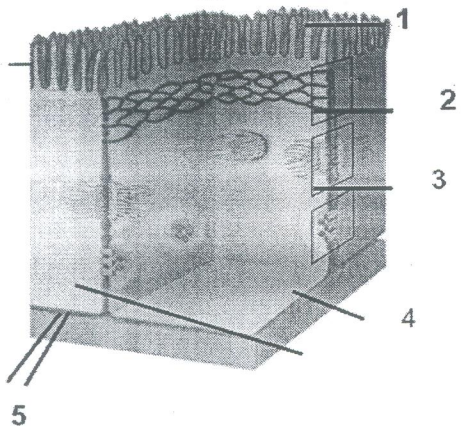
I. Answer the following questions: **(75 Marks)**

A) Multiple-Choice Quizzes: ***(30 Marks)***

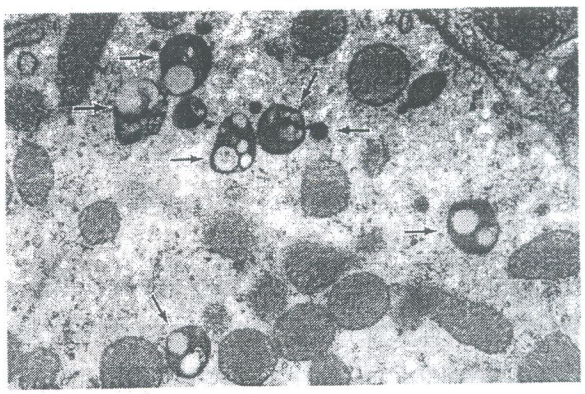
1. Free radicals are detoxified in the body by
   a. peroxisomes b. pinocytosis c. rER d. lysosomes
2. Which of the following are considered anchoring junctions?
   a. desmosomes b.gap junctions c. tight junctions
3. What will happen to animal cells placed in a hypotonic environment?
   a. Nothing will happen b. They will shrink due to water loss
   c. The cell membranes will fall apart d. They will swell and possible burst due to water gain
4. Which process accounts for the movement of solids into some animal cells?
   a. active transport b. facilitated diffusion
   c. Diffusion d. osmosis e. phagocytosis
5. All of the following are the junctions in the lateral epithelial cells EXCEPT:
   a. Tight junctions b. Desmosomes c. Cilia d. Gap junctions
6. Diffusion and osmosis do not require energy input from a cell. True or False
7. Some cells take in large molecules through the process of endocytosis. True or False
8. Lysosomes function in the destruction and recycling of old organelles. True or False
9. Autophagosome is degrading internal organelles. True or False
10. Peroxisomes derive from rough endoplasmic reticulum. True or False

B) Identify and write short comment: ***(15 Marks)***

A



B



C) Complete: ***(30 Marks)***

1. Cells are connected to neighboring cells via.....
2. Intercellular Junction is formed of..... , ... and.....
3. The term for the shrinking of chromatin is .....
4. Functions of the membrane proteins are.....,.....,.....,.....,.....,.....
5. Cis Golgi network is..... while Trans Golgi network is.....
6. Early endosome is.....but the late endosome is.....
7. The process of a cell engulfing a solid object is.....
8. Lysosomes are membrane-bound vesicles arise from the..... and they contain.....

II. Genetics

II. Answer the following questions **(75 Marks)**

A: Explain and write on the followingusing illustrated drawings if needed (30 Marks):

1. Based on the degree of biological complexity, what are the differences between the studies of cell biology and genetics for "biochemistry", "microbiology", "biophysics" and "Zoology".
2. What is the central dogma of gene expression?
3. Write on the Mechanisms of RNA transcription.
4. Write what you have learned in lectures about the genome guard, *p53* gene, and its role in triggering the DNA damage repair or cell death.
5. The structure and role of the promoter sites in prokaryotes and eukaryotes.
6. Redundant genetic code.
7. Posttranslational modifications.
8. What is the significance of histones in nucleotide formation, function and stability?
9. Mechanisms of erasing primers after S-phase of the cell cycle.
10. Main enzymes used in BER.

B: Complete the following (10 Marks):

1. Each ----------which an organism can produce, is encoded in a piece of the DNA called----------
2. The van der Waals physical force between nucleotides is called ----------
3. After hair pin is formed, the ---------- will ---------- of the template.
4. The left-handed helix with a----------phosphate backbone is----------
5. Proteins that slide along DNA to recognize damage and flip out bases are ----------

C. Define in brief (15 Marks):

a) p-factor b) coding region in eukaryotes c) transcription initiation complex
d) the hybrid helix f) primase, RNA Polymerase, Poly A polymerase

D. True (√) or False (X) (if false, write the correct answer) (20 marks):

1. DNA polymerase II is the main enzyme for DNA replication in Xeroderma pegmintosum.
2. DNA and mRNA are always double stranded.
3. Formation of the hair pin is the only method for transcription termination.
4. NER happens daily inside our bodies.
5. A-DNA, B-DNA and Z-DNA could occur in the same chromosome.
6. ABC enzyme cuts the Thymine dimers only in eukaryotes but not in prokaryotes.
7. A kink in DNA could cause a double strand break.
8. DNA methylation controls gene expression.
9. Histones in chromatin control gene expression.
10. A karyotype is the combination of DNA and proteins that make up the contents of the nucleus of a cell.

Examiners	Prof. Nabila I. El-Desouki
	Prof. Elsayed I. Salim

Good Luck

د/ حيد

BOTANY DEPARTMENT - **TANTA UNIVERSITY** - FACULTY OF SCIENCE			
Examination / Second level / Chem.-Botany & Chem.-Biochemistry Students			
Course Title:	**General Genetics**	Course Code: **BO2105**	
2 January **2014**	Term: **First**	Total assessment marks: **150**	Time Allowed: **2** hours

ANSWER THE FOLLOWING QUESTIONS

1. **Mark the right statements with the sign (√) and the wrong answers with the sign (×) of the following statements (28 Marks)**
   a) Crossing over shuffles alleles on the same chromosome into new combinations.
   b) Using probability is much slower than using the Punnett square for crosses that include multiple loci.
   c) Incomplete dominance indicates phenotype blending.
   d) Pigmentation phenotype of wheat grains is controlled by four genes.
   e) The principle of independent assortment is not really an extension of the principle of segregation.
   f) Transmission Genetics deals with basic principles of heredity.
   g) The number of linkage groups is the number of types of chromosomes of the species.
   h) Any quantitative trait is independent on the interaction between multiple genes and the environment.

2. **Complete the following sentences (52 Marks)**
   a- Dominance involves ..... suppression while epistasis requires .....suppression.
   b- A dihybrid testcross produces a ..... .
   c- The term linkage has two related meanings..... and..... .
   d- Pea seed shape gene encodes an enzyme known as ..... which catalyzes the conversion of ..... into ..... .
   e- In eukaryotic, each chromosome consists of ..... which is highly folded and condensed.
   f- X and Y chromosomes are called ..... while all other chromosomes in the genome are called ..... .
   g- Albinism is an example of ..... that influencing a number possibly unrelated ..... .
   h- Heritability is a measure of ..... among individuals.
   i- A recombination map unit is called ..... and a map unit is equal to ..... between 2 genes in 1% of the gametes.
   j- Gene interaction is of two types..... and ..... gene interaction.

أنظـــر الخلـــف

3. **Write short notes on the following (30 Marks)**
   a. Lethal alleles (genes).
   b. Molecular explanation for complementary gene action in case of flower color phenotype of sweet pea.

4. **Solve the following genetic problem (40 Marks)**

In fruit flies, curved wings are recessive to straight wings, and ebony body is recessive to gray body. A cross was made between true-breeding flies with curved wings and gray bodies to flies with straight wings and ebony bodies. The F1 offspring were then mated to flies with curved wings and ebony bodies to produce an F2 generation.

a. Diagram the genotypes of this cross, starting with the parental generation and ending with the F2 generation.

b. What are the predicted phenotypic ratios of the F2 generation?

c. Let's suppose the following data were obtained for the F2 generation:

i. 114 curved wings, ebony body

ii. 105 curved wings, gray body

iii. 111 straight wings, gray body

iv. 114 straight wings, ebony body

Conduct a chi square analysis to determine if the experimental data are consistent with the expected outcome based on Mendel's laws.

Good Luck **Dr. Reda Gaafar**

Tanta University , Faculty of Science, Department of Chemistry
Final Examination of (Organic Chemistry 1) for 2nd year students of Chem.(Micro., Bio., Bot.) and special Microbiology.
Jan. 2014 Total Assessment :100 Course Code: CH2143 Time Allowed: 2hrs

Answer the following questions

1] Put (√) or (x) and correct the wrong answer (Explain your answer) . (30 marks)

1) T.N.B can be prepared by direct nitration of benzene. ( )

2) In benzene, all carbons are SP^3 hybridized and all C-C bonds are equal in length. ( )

3) Aniline is more basicity than Benzyl amine. ( )

4) Oxidation of *p*-nitro- *tert*-butyl benzene by ($KMnO_4$) gives *p*-nitro-benzoic acid. ( )

5) Sulphonation of phenol at 25 °C gives *o*-phenol sulphonic acid. ( )

6) Reaction of benzene with 2-methyl propene in acid medium gives 2-methyl-1-phenyl propane as a major product. ( )

7) OH is *meta*-directing group in benzene & halogen has (+I,-M) effect on benzene. ( )

8) *p*- Amino phenol is more acidic than *p*-Cyano phenol. ( )

9) Nitration of 4-nitro- anisol gives 3,4-di-nitro- anisol. ( )

10) Cyclopentadienyl anion is not aromatic compound. ( )

2] Carry out of the following conversions: (25 marks)

1- Acetylene to Sulphanilamide.

2- Bromo benzene to *m*-Nitro benzoic acid.

3- Aniline to 100% o-bromophenol.

4- Toluene to Aspirine

5- Benzene to Mandelic acid.

3] Complete the following equations and name the final product. (22 marks)

a) Benzamide $+ Br_2 \xrightarrow{KOH} A \xrightarrow[HCl]{NaNO_2} B \xrightarrow{CH_3OH} C$

b) Phenol $\xrightarrow{(O)}$ ----------

c) Aniline $\xrightarrow{2CH_3I} A \xrightarrow[HCl]{NaNO_2} B$

d) Toluene + $ClSO_3H \longrightarrow A \xrightarrow{NH_3} B \xrightarrow{(O)} C \xrightarrow{Heat} D$

e) Phenol + Benzoyl chloride $\longrightarrow A \xrightarrow{AlCl_3} B + C$

→

Tanta University , Faculty of Science, Department of Chemistry
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Tanta University
Faculty of Science
Department of Chemistry

6/11

Principles of Analytical Chemistry (CH2105)
(First Semester Test - Level two)

كيمياء/ كيمياء حيوي- كيمياء/ نبات – كيمياء/ ميكروبيولوجي – نبات – ميكروبيولوجي

(First Semester Test - Level three)
كيمياء/ جيولوجيا

December 31, 2013 Total Assessment Marks: 100 Time Allowed: 2 h

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(I)- Write (√) for the true and (×) for false statements, (Give the reasons):

(65 Marks)

1) Acid media must be avoided in determination of Cl^- by titration with $AgNO_3$ ( )
2) ph.ph is dibasic acid while M.O is Monoacidic base ( )
3) For determination of CNS^- by titration with Hg^{+2} ions white precipitate of mercury nitroprosside is formed at the end point. ( )
4) Weak acid of $pK_a \leq 10^{-7}$ give sharp end point. ( )
5) For saturated solution of AgCl ($K_{sp}(AgCl) = 1.2x10^{-10}$), white precipitate can be observed. ( )
6) The useful pH range of ph.ph is 8-10. ( )
7) For titration with EDTA, metal-EDTA complex must be less stable than metal-indicator complex. ( )
8) Detection of end point in "Mohr method" is the formation of a soluble color compound. ( )
9) 2.5 gm of Na_2CO_3 dissolved in 500 ml of water. Normality of this solution is 0.05 gm.eq/L (Atomic weight : Na = 23, C = 12, and O = 16 gm/mol). ( )
10) Upon addition of S^{-2} as precipitant agent to mixture of (Ag^+ and Hg^{+2}), Ag_2S is precipitated first then HgS ($K_{sp}(Ag_2S) = 2x10^{-29}$ & $K_{sp}(HgS) = 4x10^{-53}$) ( )
11) Cu metals can not dissolve in HCl but it can dissolve in HNO_3 ($E^o_{Cu/Cu2+} = +0.34$ V & $E^o_{NO_3^-/NO} = +0.96$ V vs. NHE and $E^o_{H2/H+} = 0.0$) ( )
12) H_3PO_4 can not be titrated stepwise with NaOH ($K_{a1} = 7.5x10^{-3}$, $K_{a2} = 6.2x10^{-8}$ and $K_{a3} = 1x10^{-12}$) ( )
13) Cu^{+2} can almost completely complexed with EDTA at pH 3.5 ( )

باقي الأسئلة في الصفحة الخلفية

3. a. Calculate the rank correlation coefficient for the following data:

X	Excellent	Good	V. good	Good	V. Good	Good
Y	Good	Good	Good	Pass	V. good	Good

b. Let X be a random variable having a normal distribution with mean equals 3 and variance equals 4; find the following probabilities:

i. $p(X > 5)$ iii. $p(X > 1.5)$

ii. $p(4.5 < X < 5)$ iv. $p(1 < X < 5)$

c. If the probability that an individual suffers a bad reaction from injection of a given serum is 0.001, determine the probability that out of 2000 individuals:
(i) Exactly 3, (ii) at least 2 individuals will suffer a bad reaction.

Good Luck

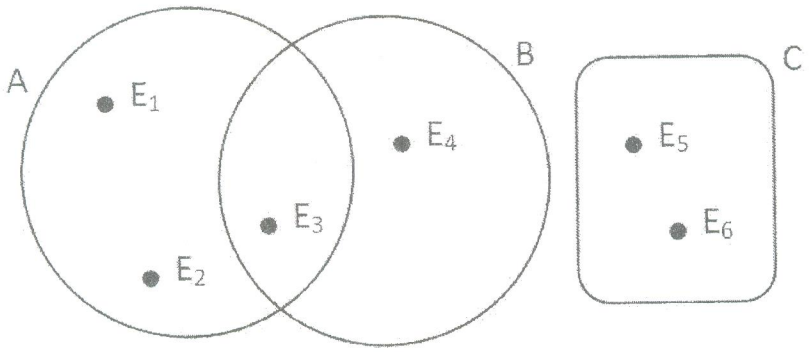
z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.000	0.004	0.008	0.012	0.016	0.019	0.024	0.028	0.032	0.036
0.1	0.040	0.044	0.048	0.052	0.056	0.060	0.064	0.068	0.071	0.075
0.2	0.079	0.083	0.087	0.091	0.095	0.099	0.103	0.106	0.110	0.114
0.3	0.118	0.122	0.126	0.129	0.133	0.137	0.141	0.144	0.148	0.152
0.4	0.155	0.159	0.163	0.166	0.170	0.174	0.177	0.181	0.184	0.188
0.5	0.192	0.195	0.199	0.202	0.205	0.209	0.212	0.216	0.219	0.222
0.6	0.226	0.229	0.232	0.236	0.239	0.242	0.245	0.249	0.252	0.255
0.7	0.258	0.261	0.264	0.267	0.270	0.273	0.276	0.279	0.282	0.285
0.8	0.288	0.291	0.294	0.297	0.300	0.302	0.305	0.308	0.311	0.313
0.9	0.316	0.319	0.321	0.324	0.326	0.329	0.332	0.334	0.337	0.339
1.0	0.341	0.344	0.346	0.349	0.351	0.351	0.355	0.358	0.353	0.362
1.1	0.364	0.367	0.369	0.371	0.373	0.375	0.377	0.379	0.381	0.383
1.2	0.385	0.387	0.389	0.391	0.393	0.394	0.396	0.398	0.400	0.402
1.3	0.403	0.405	0.407	0.408	0.410	0.412	0.413	0.415	0.416	0.418
1.4	0.419	0.421	0.422	0.424	0.425	0.427	0.428	0.429	0.431	0.432
1.5	0.433	0.435	0.436	0.437	0.438	0.439	0.441	0.442	0.443	0.444
1.6	0.445	0.446	0.447	0.448	0.450	0.451	0.452	0.453	0.454	0.455
1.7	0.455	0.456	0.457	0.458	0.459	0.460	0.461	0.462	0.463	0.463
1.8	0.464	0.465	0.466	0.466	0.467	0.468	0.469	0.469	0.470	0.471
1.9	0.471	0.472	0.473	0.473	0.474	0.474	0.475	0.476	0.476	0.477
2.0	0.477	0.478	0.478	0.479	0.479	0.480	0.480	0.481	0.481	0.482
2.1	0.482	0.483	0.483	0.483	0.484	0.484	0.485	0.485	0.485	0.486
2.2	0.486	0.486	0.487	0.487	0.488	0.488	0.488	0.488	0.489	0.489
2.3	0.489	0.490	0.490	0.490	0.490	0.491	0.491	0.491	0.491	0.492
2.4	0.492	0.492	0.492	0.493	0.493	0.493	0.493	0.493	0.493	0.494

	TANTA UNIVERSITY - FACULTY OF SCIENCE - MATHEMATICS DEPARTMENT		
	EXAMINATION for 2TH LEVEL (CHM-BOTANY/MICROBIOLOGY/BIOCHEMISTRY)		
	COURSE TITLE: Introduction to Statistics (ST2105)		TIME ALLOWED: 2 Hours
DATE: 28 December 2015	TERM: First	TOTAL ASSESSMENT MARKS: 50	

Final Examination Paper

Answer the following questions:

1. a. A sample space contains six sample points and events A, B, and C as shown in the accompanying Venn diagram. The probabilities of the sample points are $p(E_1)=0.2$ $p(E_2)=0.05$, $p(E_3)=0.30$, $p(E_4)=p(E_5)=0.1$ and $p(E_6)=0.25$



Find: $p(A)$, $p(B)$, $p(C')$, $p(A\cup B)$, $p(A\cap B)$, $p(A\cap C)$, $p(B\cup C)$

b. The following data are sorted in an ascending order; find X, Y, Z and W; if the average = 11, the median = 7.5, the mode = 7 and the range = 20:

3, 4, 6, 7, X, Y, Z, 18, 20, W

---

2. a. For the following data:

X	5	3	6	4	3
Y	7	5	4	5	1

i. Find Pearson correlation coefficient.
ii. Find the equation of the regression line.
iii. Estimate the value of Y when $X=10$.

b. Consider the following probability distribution for the number of cars he expects to sell on a particular Thursday:

Number of cars sold (X)	0	4	7	9
Probability P(X)	4d	5d	7d	4d

Find the value of the constant d and the Standard deviation.

d. Stemmata are the only visual organs of **adult Lepidoptera**.

e. Subgenual organ subserves sound perception in **male mosquito**.

2-Indicate whether the following statements are true (T) or false (F) if the statement **is false correct the wrong part so that the statement is true: (Total: 10 Marks, 2 each)**

a. The tritocerebral lobes are joined together by means of circumoesophageal connectives. ( )

b. Sensory neurons are always bipolar neurons. ( )

c. Campaniform sensilla are tactile sensilla. ( )

d. Compound eye is a compound structures composed of a group of units called scolopedia. ( )

e. In vermiform larvae the body is elongate, cerci, antennae, and legs are well-developed. ( )

3- Briefly discuss the basic components of the insect integument and moulting process. **(20Marks)**

4- Compare between the insect's mechanosensory, olfactory, and gustatory sensilla. **(10 Marks)**

PART III (50 MARKS)

Write short notes on the following:

1- Types of enzymes secretion in midgut of insects. (10 marks)

2- Differences between filter chamber and fermination chamber of insects. (10 marks)

3- Function of haemolymph in insects. (10 marks)

4- Types of reproduction and ovaries of insects. (10 marks)

5- Mechanism of excretion through Malpighian tubules. (10 marks)

GOOD LUCK!

EXAMINERS ***Prof.Dr.* Saieed Naieem** ***Dr.* Samar Ezzat**

***Dr.* Mervat Abou Seada**

	TANAT UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF ZOOLOGY SECOND LEVEL CHEMESTRY AND ENTOMOLOGY STUDENTS		
	COURSE TITLE:	Morphology &Anatomy	COURSE CODE: EN2121
DATE:28/12/ 2015	JUNE 2016	TOTAL ASSESSMENT MARKS: 150	TIME ALLOWED: 2 HOURS

(يتكون الامتحان من صفحتين)

PART I (50 MARKS)

1-Discuss the following items **(Total: 10 marks, 5 each)**

1. Orientation of the head
2. Wing coupling mechanisms

2-Compare with fully labeled drawing between each of the following (Total: 15 marks)

1- Chewing and siphoning mouth parts (10 marks)
2- Setaceous and serrate antennae (5 marks)

3-Mention the modification and the representative insect of the following: (Total: 5 marks, 2.5 each)

1- Jumping leg 2- Collecting leg

4-Complete the following statements: (Total : 20 marks, 2 each)

a. In insect head, suture means.....while sulcus means.....
b. Sponging mouth parts consist of three regions:.....,.....and.....
c. ..... have plumose antennae, while.....have pilose antennae.
d. .....have hemielytron wing.
e. Halters present in..... . They help in.....
f. The abdomen of gravid female termites is.....
g. Cerci usually function as.....
h. Female reproductive system of honeybee workers modified into.....
i. All piercing sucking mouth parts are modified into.....
j. .....have digging legs that help in.....

PART II (50 MARKS)

1-Correct the following statements: (Total: 10 Marks, 2 each).

a. **Coarctate pupae** are with the legs and wings glued to the body of the pupa.
b. **The stomatogastric sympathetic** nervous system innervates the reproductive system and hind gut.
c. Apolysis is the **formation of the new cuticle on the epidermis**.

5) According to the Lewis definition, an acid is species

a) Electron pair donor b) Proton donor c) Electron pair acceptor

6) Mohr 's method is only used for determine

a) Cl^- and Br^- b) I^- and CN^- c) Cl^-, Br^-, I^- and CN^-

7) Indicator used in determination of metal ions with EDTA by "alkalimetric method" is

a) ph.ph b) Erio. T c) M.O

8) In determination of chloride ion (Cl^-) by Mohr 's method, the first precipitate is:

a) AgSCN b) Ag_2CrO_4 c) AgCl

9) For determination of I^- by "Volhard's method", Fe^{3+} ions as indicator must be added

a) after excess of $AgNO_3$ b) after titration with KSCN c) before excess of $AgNO_3$

10) Equivalent weight of $KMnO_4$ in acid media is

a) Mol Wt/ 1 b) Mol Wt/ 5 c) Mol Wt/ 3

Question (3): Answer " five " only of the following: *(40 Marks)*

1) Define "Masking" and "Demasking" agents. Explain their roles with examples.

2) Determine each of Mg^{2+} and Zn^{2+} in a mixture using EDTA.

3) Is the titration of 0.1 N H_2CO_3 ($K_1 = 4.2 \times 10^{-7}$ and $K_2 = 4.8 \times 10^{-11}$) with 0.1 N NaOH stepwise or not ? - What are the pH values at the possible equivalence points and the suitable indicators that can be used to detect them?

4) Differentiate between "alkalimetry" and "acidimetry".

5) If the pH of solution containing (10^{-3} M MnO_4^- + 10^{-2} M Mn^{2+}) is 2. Apply "Nernst equation" and determine the potential of this half reaction?

6) State the rules of writing half-cell reaction.

7) Calculate the pH of a solution prepared by adding 60.0 mL of 0.1 M NaOH to 100 mL of 0.1 M CH_3COOH solution. ($k_a = 1.85 \times 10^{-5}$) .

Good Luck

Examiners	***Prof. Dr. Mohamed Youssry El-Sheikh***
	Prof. Dr. Hanaa Salah El-Desoky
	Dr. Marwa Nabeeh El-Nahass

1969	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY			
	EXAMINATION FOR SECOND YEAR STUDENTS			
	COURSE TITLE:	PRINCIPLES OF ANALYTICAL CHEMISTRY		COURSE CODE: CH2105
DATE:	6-1-2016	TERM: FIRST TERM	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

Question (1): Write (√) for the true and (×) for false statements and give the reasons for your answer:

Choose only "ten " of the following: ***(30 Marks)***

1) A ppm is the number of parts of solute per billion parts of the solution. ( )
2) End point in "Mohr's method" is the formation of a soluble color compound. ( )
3) Metal-EDTA complex must be less stable than metal-indicator complex. ( )
4) For weak polyprotic acids: $K_{a1} < K_{a2} < K_{a3}$. ( )
5) Acid media must be avoided in determination of Cl^- by "Mohr's method". ( )
6) Direct determination of Ni^{2+} with EDTA is impossible. ( )
7) The useful pH range of ph.ph is 8-10. ( )
8) Lower the pH, higher would be the stability of metal-EDTA complex. ( )
9) Determination of halide by Volhard's method carried out in presence of HNO_3. ( )
10) H_3PO_4 can not be titrated stepwise with NaOH ($K_{a1} = 7.5x10^{-3}$, $K_{a2} = 6.2x10^{-8}$ and $K_{a3} = 1x10^{-12}$) ( )
11) The metal which forms more stable complex with EDTA can be determined by displacement reaction with Mg-EDTA complex. ( )
12) $KMnO_4$ is strong reducing agent. ( )

Question (2): Choose the correct answer and give the reasons:

Choose only "ten " of the following: ***(30 Marks)***

1) Indicator used in determination of "chloride ion" using Volhard's method is

a) K_2CrO_4 **b)** $Fe(NO_3)_3$ **c)** Erio T

2) To determine Zn^{2+} by complex EDTA titration, the medium must contain

a) KCN **b)** HCHO **d)** $NH_4Cl + NH_4OH$

3) pH of 0.01 M $Ba(OH)_2$ solution is

a) 12.3 **b)** 1.7 **c)** 1.0

4) Very sharp end point was obtained with an acid of ionization constant equals:

a) 10^{-2} **b)** 10^{-7} **c)** 10^{-12}

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